The influence of market orientation on innovation strategies

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Introduction

Market orientation has been defined as a strategic orientation towards being responsive to the needs of customers, which is rooted in an organization's culture (Kohli & Jaworski, 1990; Narver & Slater, 1990). A growing literature has examined the benefits market orientation brings to a firm (Jaworski & Kohli, 1993; Han et al., 1998). It has been shown to enhance firm performance in a variety of organizational and industrial contexts (Narver & Slater, 1990; Slater & Narver, 1994).

In recent years researchers have begun to examine the impact of a firm's market orientation on the innovation strategies adopted by firms (Athuahene-Gima, 1995; 1996; Sandvik & Sandvik, 2003; Nasution, Mavondo, Matanda, & Ndubisi, 2011; Liu, 2013). For example, Liu (2013) finds that market orientation leads to higher levels of innovation performance through spurring higher levels of service innovativeness. However, existing studies in the service innovation literature have typically conceptualized market orientation as a single dimensional construct, and so have not distinguished between exploitative and exploratory forms of innovation (Liu, 2013). Whilst exploitative innovation refers to incremental innovations that broaden existing skills and knowledge, exploratory innovation refers to more radical innovations, which depart from existing knowledge (Jansen, Van den Bosch, & Volberda, 2006).

In addition, limited attention has been placed on whether the influence of market orientation on exploratory and exploitative innovation differs between family and non-family firms. Although recent work has examined the nature of the relationship between general measures of market orientation and innovation in family firms (Beck, Janssens, Debruyne, & Lommelen, 2011), and whether family and non-family firms differ in respect to their market

orientation (Zachary, McKenny, Short, & Payne, 2011), there has been limited work examining the relative influence of customer and competitor orientation on innovation in family and non-family firms.

In this study we address these gaps in the literature to provide a better understanding of the relationship between market orientation and innovation amongst service sector firms. In doing this we ask two main questions. First, we ask whether customer and competitor orientation have differential effects on the innovation strategies adopted by service sector firms. More specifically, we examine whether customer innovation has stronger effects on exploitative innovation in service sector firms, and whether competitor orientation has stronger effects on exploratory innovation. Second, we ask whether the positive effects of customer and competitor orientation on exploratory and exploitative innovation differ between family and non-family firms. More specifically, we ask whether customer orientation is more important to innovation in family firms, and competitor orientation to non-family firms as a result of differing resource endowments and willingness to involve non-family members in decision-making.

In examining these issues we make two main contributions. First, we make a distinct empirical contribution by measuring the relative influence of customer and competitor orientation on a firm's use of exploitative and exploratory innovation strategies. Although previous studies have examined whether customer and competitor orientation influence the innovation strategies adopted by firms (Lukas & Ferrell, 2000; Athuahene-Gima, 2005), they have not examined their relative effects on exploitative and exploratory innovation. Using this approach, our study will allow us to address the inconsistent findings in the literature, and confirm whether differential effects actually exist as some researchers have asserted (Christensen & Bower, 1996).

Second, we make an important theoretical contribution by addressing the calls of researchers for more research to examine how family ownership influences the innovation strategies adopted by firms (De Massis, Frattini, Pizzurno, & Cassis, in press; Nieto, Santamaria, & Fernandez, in press). In doing so we identify family ownership as an important boundary condition that may explain the inconsistent findings from previous research on market orientation and the innovation strategies adopted by firms (Lukas & Ferrell, 2000; Athuahene-Gima, 2005). More specifically, by drawing on the resource-based view (RBV) and agency theory, we argue that differences in resource endowments between family and non-family firms, and the extent to which they involve others in strategic decision-making, influences their ability to leverage customer and competitor orientation when conducting exploitative and exploratory innovation. We argue that customer orientation will have a stronger effect on exploratory and exploitative innovation strategies in family firms as they are more likely to develop stronger long-term relationships with their main customers given distinct advantages they possess in be able to building social capital with key stakeholders, and lower levels of financial and human capital to support in-house innovation (Dyer, 2006; Habbershon & Williams, 1999; Lee, 2006; Lyman, 1991). In contrast, we propose competitor orientation has a stronger effect on innovation in non-family firms, as they are more willing to involve non-family employees in strategic decision-making, and are therefore better able to leverage information on competitors (Short, Payne, Brigham, Lumpkin, & Broberg, 2009; Zahra, Hayton, Neubaum, Dibrell, & Craig, 2008). Understanding how family ownership influences how firms leverage their customer and competitor orientation in the innovation process is important given the growing contribution made by family firms to economic activity across the globe. As highlighted by Schulze and Gedajlovic (2010), the family business is the world's most common form of business organization. For example, in the UK

alone, family businesses account for more than 35 per cent of private sector turnover and 40 per cent of private sector jobs (Institute for Family Business, 2011).

The findings of our study have important practical implications for service sector firms. As well as examining the need for managers to build a strong market orientation in order to promote innovation in their organizations, they also highlight the need to consider the ownership structure of the organization when deciding whether to focus on developing a strong customer orientation versus developing a strong competitor orientation. In the following section we examine the literature on market orientation and innovation and develop relevant hypotheses. Then we present the methodology and results of the study. Following this we discuss the results and their implications for theory and practice. Finally, we highlight the limitations of the study and provide suggestions for future research.

Literature review

Market orientation

The concept of market orientation has been developed by marketing scholars as a strategic framework to explore how firms pursue and secure sustainable competitive advantage (Kumar, Jones, Venkatesan, & Leone, 2011). In the literature, the impact of marketing on firm performance has been operationalized through development of the concept of market orientation and formulation of measures to assess this ( ). Market orientation has been defined as a strategic inclination towards being responsive to the needs of customers, which is rooted in an organization's culture (Jaworski & Kohli, 1993; Kohli & Jaworski, 1990; Narver & Slater, 1990). The primary objective of a firm's market orientation is to provide superior customer value based on insights gained from analysis of customer and competitor behaviors (Narver & Slater, 1990).

In this study we focus on two dimensions of market orientation that have been widely investigated in the literature; customer and competitor orientation. Customer orientation refers to the extent that a firm can deploy its understanding of organisations and individuals that purchase their services and goods, in order to provide superior and continuous value (Narver & Slater, 1990). Firms with a high degree of customer orientation strive to build close relationships with their customers and seek their feedback on a regular basis. In contrast, competitor orientation is defined as a firm's understanding of its current and potential competitors' strengths and weaknesses (Narver & Slater, 1990). Firms with a high degree of competitor orientation constantly evaluate the competitive landscape in their industry and benchmark themselves against their competitors. In doing so, they compare their own strength and weaknesses with those of other firms, and search for competitive threats and opportunities.

Market orientation and innovation

A growing body of research has begun to examine the impact of market orientation on innovation (Athuahene-Gima, 1995; 1996; Beck et al., 2011; Sandvik & Sandvik, 2003; Nasution et al., 2011). However, existing studies has typically failed to distinguish between customer and competitor orientation when investigating such issues, and used general measures of market innovation or focused purely on customer orientation (Nasution et al., 2011). In addition, there has been little differentiation between exploitative and exploratory forms of innovation when examining the impact of market orientation (Beck et al., 2011). Following previous literature (Smith & Tushman, 2005; Jansen et al., 2006; Bierly et al., 2009) we examine the use of exploratory and exploitative innovation strategies by organizations (Jansen et al., 2006). Exploitative innovations are incremental innovations that focus on the needs of existing customers and markets (Benner and Tushman, 2003). They

build on current knowledge and skills through acts of refinement and gradual improvement, and involve increasing the efficiency of existing processes and expanding extant product and service offerings (Chang & Hughes, 2012).

In contrast, exploratory innovations are radical innovations which meet the needs of new or emerging customers or markets (Benner and Tushman, 2003; Jansen et al., 2006). They involve the creation of new products and services, and the development of new markets and distribution channels (Zachary et al., 2011). Exploratory innovations depend on experimentation with new ideas and ways of doing things that generate new knowledge and skills. As a result they are associated with greater divergent or 'out of the box' thinking than exploitative innovations (Smith & Tushman, 2005), and have been shown to have stronger effects on the financial performance of firms (Jansen et al., 2006).

Although market orientation is conceptually related to exploitation and exploration strategies, they are distinct theoretical concepts and have been shown to demonstrate divergent validity empirically (Narver & Slater, 1990). Whereas market orientation is a firm-level trait, exploitation and exploration strategies are developed and used by firms to innovate (Slater and Narver, 1995). In other words, market orientation creates the norms by which firms can learn from their customers and competitors, which in turn enable firms to engage in exploitative and exploratory innovation.

Hypothesis development

The relationship between market orientation and innovation strategies

As highlighted earlier, growing empirical work has examined the influence of market orientation on the innovation strategies adopted by firms (Christensen & Bower, 1996; Lukas & Ferrell, 2000). In general this work establishes positive effects of both customer and competitor orientation on different measures of innovation. For example, a recent meta-

analysis of prior empirical work by Grinstein (2008) found positive effects of both customer and competitor orientation on innovation outcomes. Similarly, Athuahene-Gima (2005) found positive effects of both customer and competitor orientation on a firm's use of competence exploration and exploitation. However, prior empirical work has not examined the relative influence of customer and competitor orientation on the use of exploitative and exploratory innovation strategies by firms. It is important to study the relative effects of customer and competitor orientation on the use of both exploitative and exploratory innovation strategies for two main reasons. The first relates to the fact that exploratory and exploitative innovation are very different, in that exploitative innovation is more incremental and framed through current resources and relationships, whereas exploratory is more speculative and focused on changing market dynamics and structures. The second reason is that the effects and benefits of exploratory and exploitative innovation vary quite differently. Whereas exploitative innovation is generally safer and can produce expected results, exploratory innovation is often unsuccessful, but has the potential to generate significant returns for successful firms. In the present study we propose that although customer and competitor orientation are likely to be positively related to both exploitative and exploratory innovation strategies, customer orientation will have stronger effects on exploitative innovation, and customer orientation stronger effects on exploratory innovation for two main reasons.

First, although customer orientation has been shown to influence the use of both exploitative and exploratory innovation strategies by firms (Athuahene-Gima, 2005), researchers have proposed that customer orientation is likely to have stronger effects on more incremental exploitative innovation as day-to-day interaction with customers allows firms to gradually improve existing product and service offerings in response to customer feedback (Christensen & Bower, 1996). Although some firms are becoming more efficient at involving customers in more radical forms of exploratory innovation, through stimulating them to

suggest new product and service ideas (Lukas & Ferrell, 2000), researchers have argued that customer orientation is typically only a source of marginal innovation which assists in improving the efficiency of existing processes and service offerings as customers have difficulty explaining their needs beyond their present consumption experiences (Christensen 1997, Christensen et al. 2005, Grinstein, 2008). As a result customer orientation is likely to have stronger effects on exploitative as opposed to exploratory innovation.

Second, although competitor orientation has been shown to influence the use of both exploitative and exploratory innovation strategies (Athuahene-Gima, 2005), it may be expected to have stronger effects on exploratory innovation that exploitative innovation. Although some commentators have argued that firms who continuously evaluate the actions of their competitors are likely to lead firms to imitate their rival's products making only incremental improvements to their products and services (Lukas & Ferrell, 2000), other researchers have argued that a focus on competitors will lead firms to think 'outside the box' and develop radically different ways of doing things from their competitors to win market share. For example, Athuahene-Gima (2005) argues that with greater knowledge of their competitors, managers will become dissatisfied with both their firm's own capabilities and that of their competitors, which leads them to invest in the development of new capabilities.

This leads us to the following hypotheses:

H1: Customer orientation will be more strongly related to exploitative than exploratory innovation

H2: Competitor orientation will be more strongly related to exploratory innovation than exploitative innovation

The moderating effects of family ownership

Although recent work suggests than there may be distinct differences in how family-owned and non-family firms innovate (Carney, 2005; Deng, Hofman, & Newman, 2013; Eddleston, Kellermanns, & Sarathy, 2008), this work has not distinguished sufficiently between incremental or exploitative forms of innovation, and more radical or exploratory forms of innovation. In addition, although previous research has established that family firms typically exhibit higher levels of customer orientation than non-family firms, and family-firms higher levels of competitor orientation (Tokarczyk, Hansen, Green, & Down, 2007; Zachary et al., 2011), prior research has not examined whether family firms are able to utilize customer orientation more effectively, and non-family firms competitor orientation more effectively, in the innovation process.

In the present study we draw upon the resource-based view (RBV) (Wernerfelt, 1984) and agency theory (Jensen & Mecking, 1976) to explain how family and non-family firms differ in terms of how effectively they utilise their customer and competitor orientation when conducting exploratory and exploitative innovation. Whereas the RBV asserts that differential performance between firms can vary according to their resource endowments (Tokarczyk, Hansen, Green, & Down, 2007), agency theory asserts that firms seek to reduce the agency costs that result from the separation of ownership and management by aligning managerial and shareholder interests (Nieto et al., in press). In the prior literature both perspectives have been widely used to explain differences between family and non-family firms in terms of the distinct strategies they adopt (De Massis et al., in press; Nieto et al., in press). For example, the RBV perspective has been used to explain differences in resource endowments between family and non-family firms and how such differences influence firm strategy (Habbershon & Williams, 1999), whereas agency theory has been used to explain

why family firms are reluctant to involve professional managers from outside the family in strategic decision-making (Deng et al., 2013).

In the present study we utilize the RBV and agency theory to propose that family firms will more effectively leverage their customer orientation in the innovation process than non-family firms, and non-family firms will more effectively leverage their competitor orientation. First, under the RBV perspective we might expect customer orientation to have stronger effects on exploratory and exploitative innovation for family firms than non-family firms. Scholars have argued that the interaction between the family and the business may lead family businesses to build distinct competitive advantages or disadvantages compared to non-family firms through higher or lower levels of human, social and financial capital (Chua, Chrisman, & Sharma, 1999; De Massis et al., 2013). For example, family firms typically have lower levels of financial capital to fund innovation than non-family firms due to high levels of asymmetric information with potential financiers, and a greater reluctance to take on external equity financing (Wu, Chua, & Chrisman, 2007). Family firms also suffer from limited access to human capital than non-family firms due to a greater prevalence of them to favour kin over more capable individuals from outside the family (Miller and Le Breton-Miller 2005). Such unfair practices make it difficult for family to recruit talented professionals, and reduce incentives for non-family employees to invest in firm-specific knowledge (Miller, Le Breton-Miller, & Scholnick 2008). Lower levels of financial and human capital are in turn likely to negative consequences for the ability of family-firms to conduct in-house research and development, resulting in an added incentive for them to rely on sources of external knowledge when conducting innovation, such as seeking advice and ideas from their main customers. Indeed, empirical work suggests that resource constraints lead family firms to place a greater focus on building strong, cooperative relationships with

their main customers than non-family firms (Lyman, 1991; Habbershon & Williams, 1999; Dyer, 2006; Lee, 2006).

As well as placing a greater emphasis on building stronger relationships with their main customers, recent work also suggests that family firms have unique advantages in leveraging the social capital inherent in such relationships to access resources. For example, the long tenure of family members in key management positions enables them to build up long-term relationships with customers characterized by high levels of trust and reciprocity, than is the case for non-family firms where managerial tenure is typically shorter (Arregle, Hitt, Sirmon, & Very, 2007; Gómez-Mejía, Nunez-Nickel, & Gutierrez, 2001). Such relationships are likely to increase the willingness of customers to forward suggestions for improvements of existing products and services, and the development of new ones. Long tenure also provides managers with tacit knowledge of how best to work with their customers to develop new products and services and improve existing ones (De Massis et al., in press).

In other words, as well as having greater knowledge of how to work with their main customers in the innovation process, family firms are likely to benefit from an increased willingness amongst their customers to contribute to the development of new products and services, and the improvement of existing ones, through the provision of advice and know-how. This should allow them to better leverage their customer orientation to conduct exploitative and exploratory innovation, and leads us to the following hypothesis:

H3: Family ownership will moderate the relationships between a) customer orientation and exploitative innovation; and b) customer orientation and exploratory innovation, in such a way that the relationship will be stronger for family firms

Second, based on agency theory we might expect competitor orientation to have weaker effects of exploratory and exploitative innovation for family firms than non-family firms, due

to differences in their ability to leverage their competitor orientation in the process of innovation. Agency theory suggests that the family business is a highly advantageous business form given that it enables the firm to avoid agency costs that arise from the separation of ownership and management (Jensen & Meckling, 1976). For example, in order to reduce the likelihood that managers will act opportunistically, family firms are typically less willing to hire professional managers from outside of the family, preferring to appoint family members to key positions in the organization (Young et al., 2008). Even when they hire professional managers from outside the family to fill key positions, the limited willingness of family members to trust outsiders will lead family firms to restrict outsider involvement in decision-making (Su & Carney, 2011). This in turn may limit the ability of non-family employees to contribute to the process of strategic planning and sub-optimise the use of information on competitors when making strategic decisions related to innovation (Habbershon & Williams, 1999; Beck et al., 2011). More specifically, the lower tendency of family firms to involve employees from outside the organization in the development of relevant innovation strategies will mean they are unable to leverage competitor orientation as effectively as non-family businesses. In support of such assertions, recent empirical work suggests that non-family firms are better at processing competitor information and using it to their advantage (Zachary et al., 2011), more aggressive than non-family firms in responding to new information on competitors (Short et al., 2009; Zahra et al., 2008), and quicker to react to threats from competitors when innovating (Narver & Slater, 1990). Based on these arguments we argue that the family business culture limits the ability of family firms to leverage their competitor orientation in the innovation process to the same extent as non-family firms. This leads us to the following hypothesis:

H4: Family ownership will moderate the relationships between a) competitor orientation and exploitative innovation; and b) competitor orientation and exploratory innovation, in such a way that the relationship will be weaker for family firms

The overall research model along with the hypotheses is presented in Figure 1.

(Figure 1)

Method

Sample and procedures

This study utilized a cross-sectional mail survey of a random sample of firms from the Australian service sector, based on the Australian and New Zealand Standard Industrial Classification (ANZSIC). A cross-industry sample was chosen to increase the generalizability of our findings. The unit of analysis is at the firm level. In administering our survey, we specifically requested in the cover letter of the survey that the questionnaire be assigned to senior managers or individuals who hold a managerial position, which involves making strategic and operational decisions within the firm. This is to ensure that the respondents are familiar with the decisions made with regard to innovation in their firms. In total, 1,500 questionnaires were mailed out, and 228 usable responses were received, giving an effective response rate of 15.2%. The distribution of industry sectors of the sample is presented in Table 1. The breakdown of the sample in terms of organizational size and age is presented in Table 2 and Table 3. Out of 228 firms, 64 firms were family-owned businesses.

(Table 1)

(Table 2)

(Table 3)

The 228 usable responses consisted of 169 respondents (74%) who held senior management position, including CEOs, Directors/Managing Directors, and General Managers. The remainder of the respondents (26%) held at least middle management positions in their firms (including positions in business operations and development and marketing).

Non-response bias

We estimated non-response bias through time trend analysis (Armstrong & Overton, 1977; Moore & Tarnai, 2002). Early and late respondents (used as proxies for non-respondents) were compared on the basis of both sample characteristics (industry and size) and the main construct measures. Using chi-square statistics, no significant differences were found between the size and the industry of early respondents and late respondents. T-tests were also performed to compare the means of the constructs used in the statistical analyses and no difference was found between early and late respondents. As a result, it seems that non-response bias is not of concern in our sample.

Measures

Family-ownership was measured using a dummy variable, where 1 represents a family firm and 0 represents a non-family firm. The measures of exploratory and exploitative innovation orientations were taken from Jansen et al. (2006). The measure for exploratory innovation captures the extent to which firms seek to develop and commercialize services, which are new to the firms themselves, as well as the markets in which they operate. The measure for exploitative innovation captures the extent to which firms refine and incrementally improve services they presently offer to existing markets. Customer orientation and competitor orientation were measured using 6 and 4-item scales taken from the integrated market orientation scale developed by Nasution and Mavondo (2008) based on Narver and Slater's

(1990) work. We also included two measures of business environment (dynamism and competitiveness) as control variables in our analysis. The two measures were also taken from Jansen et al. (2006). Finally we controlled for firm size and firm age in the analysis. All continuous variables were captured using a 7-point Likert scale ranging from 1 (strongly disagree), 4 (neutral) to 7 (strongly agree). The items used in each these scales are presented in Table 4.

(Table 4)

Results

Scale validity and reliability

The six multi-item scales used in the present study were subjected to validity and reliability tests. The results of these tests are presented in Table 4.

Overall, the results of CFA demonstrate the construct validity of our model. The normed Chi-square is less than 2, the fit indices are above 0.90, and the RMSEA is less than 0.07. In addition, the items loaded significantly on their respective constructs. All item loadings are also above >0.5, uni-dimensionality and convergent validity for the constructs. The results of reliability test show that the Cronbach's alpha for all six constructs surpassed the 0.7 threshold. For the discriminant validity 15 pair tests were performed, and for each pair, we found significant differences (at $p<0.01$) in the Chi-square (χ^2) values between the constrained and unconstrained models; thus, confirming the discriminant validity of the constructs.

Common method variance

The result of common method variance test using a single factor model shows a poor fit to the data (Chi-square ($\chi 2$) = 3343.66; df = 434; RMSEA = 0.172). In addition, a large portion

of the indicators have poor factor loadings (0.4 or below), with a few even showing negative values. These results suggest that common method variance was not a significant problem in the data set.

Composite scores

Mean scores were calculated from the scale's items to generate the composite scores for the six constructs to be used in the regression analysis. The check for their normality indicated no violation, with skewness and kurtosis values well within the accepted range. The result of the MANOVA test was non-statistically significant (based on F values of both Pillai's Trace and Wilks' Lambda at $p<0.05$), suggesting the non-significant differences between industrial sectors within the sample. Therefore, it is appropriate to pool the data in the analysis.

Bivariate correlations

Bivariate correlations among the composite scores are presented in Table 5, and none of the correlation coefficients show excessive values which pose potential threat of multicollinearity. The results show that family business has no effect on any other variables, including exploitative and exploratory innovation. On the other hand, both customer orientation and competitor orientation are positively correlated with both exploitative and exploratory innovation. Customer orientation and exploitative innovation were strongly positively correlated, reflecting the wider literature's association of this form of innovation with a customer focus. A competitor orientation was strongly associated with both forms of innovation.

(Table 5)

Path analysis

We used path analysis to test H1 and H2. We set up a path analysis model with four paths from customer orientation and competitor orientation (as exogenous variables) to exploitative and exploratory innovation (endogenous variables). Based on the four paths, we ran two competing models. In the first model we fixed two pairs of paths to be equal. The first pair of paths is customer orientation – exploitative innovation and customer orientation – exploratory innovation. The second pair of paths is competitor orientation – exploitative innovation and competitor orientation – exploratory innovation. In the second model, we allow the four paths to be freely estimated. We compared the chi-square of these two models, and if model 2 is superior than model 1, we can conclude that the paths in each pair are significantly different. The results are shown in Figure 2 and 3.

(Figure 2)

(Figure 3)

Model 1 shows that the paths of customer orientation – exploitative innovation and customer orientation – exploratory innovation are constrained to be equal (0.33 at $p<0.01$). Similarly the paths of competitor orientation – exploitative innovation and competitor orientation – exploratory innovation are also constrained to be equal (0.26 at $p<0.01$). In the second model, we allow the four paths to be freely estimated. The results in model 2 show that customer orientation has a relatively stronger effect on exploitative innovation than exploratory innovation (0.35 at $p<0.01$ and 0.25 at $p<0.01$ respectively). Similarly competitor orientation shows a stronger effect on exploratory innovation than exploitative innovation (0.34 at $p<0.01$ and 0.23 at $p<0.01$ respectively). However, the chi-square difference between these two models is 3.84 at 2 degree of freedom, which is below the cut-off point of 6.84 (chi-square value at 2 degree of freedom). Therefore, we conclude that there is no significant difference between the fixed paths and the constrained paths of the two pairs. In other words, despite the difference of the path coefficients, customer orientation does not have a stronger

effect on exploitative innovation than on exploratory innovation. At the same time, competitor orientation does not have a stronger effect on exploratory innovation than on exploitative innovation. Therefore, H1 and H2 are not supported.

Multi-group path analysis

We used multi-group path analysis (in LISREL) to test the different effects of customer orientation and competitor orientation on exploitative and exploratory innovation. First, we split the sample into family firms (n = 64) and non-family firms (n = 164). After splitting the sample into family firms and non-family firms, we tested four paths from customer orientation and competitor orientation as exogenous variables to exploitative and exploratory innovation as endogenous variables, whilst including control variables in our models. We ran two path analysis models on each of the two sample groups. In model 1, we constrained all four paths to be fixed between family and non-family firms, assuming that there is no difference in the effects of customer orientation and competitor orientation on exploitative and exploratory innovation between family and non-family firms. The result in Figure 4 shows that the model shows a poor fit with RMSEA value well exceeds the cut-off point of acceptable model (i.e. 0.08). This suggests that the tested paths are different between family and non-family firms.

In model 2, we allowed the paths to be freely estimated, assuming that the effects of customer orientation and competitor orientation on exploitative and exploratory innovation are different between family and non-family firms. The chi-square values between the two models were compared against the degree of freedom to determine which models were superior. The best competing model is presented in Figure 5 where three of the four paths were unconstrained, leaving one path (customer orientation – exploitative innovation) being fixed (equal) between family and non-family firms. The chi-square difference between the

two models is 9.95 with the difference of degree of freedom of 3, and this value exceeds the chi-square value for 3 degree of freedom, that is 7.81. Therefore, the results show that model 2 is significantly superior than model 1.

(Figure 4)

(Figure 5)

Based on model 2, the results show that there is no difference in the effect of customer orientation on exploitative innovation; therefore H3a is not supported. On the other hand, customer orientation has a stronger effect on exploratory innovation in family firms (0.46 at $p<0.01$) compared to non-family firms (0.13 at $p>0.05$); in support of H3b. Competitor orientation is more positively related to both exploitative innovation and exploratory innovation among non-family firms (0.28 at $p<0.01$ and 0.48 at $p<0.01$ respectively) compared to family firms (0.13 at $p>0.05$ and 0.11 at $p>0.05$ respectively). Therefore, H4a and H4b are supported.

Discussion

In the present study we examined the relationships between market orientation and exploratory/exploitative innovation using a sample of 228 firms from the Australian service sector. Although we found a strong relationship between two dimensions of market orientation, namely customer and competitor orientation, and both exploratory and exploitative innovation, there was no statistical evidence to suggest that customer orientation was more strongly related to exploitative innovation, and competitor orientation was more strongly related to exploratory innovation, as has been suggested in previous research (Christensen & Bower, 1996). Further analysis revealed that whereas the relationship between customer orientation and exploratory innovation was stronger for family firms, the relationship between competitor orientation and both exploratory and exploitative innovation

was weaker. However, against what was hypothesized family-ownership did not moderate the relationship between customer orientation and exploitative innovation.

This study makes two main contributions to the literature. First, by examining whether customer and competitor orientation have differential effects on a firm's use of exploratory and exploitative innovation strategies, it allows us to provide a more nuanced explanation of how market orientation effects the innovation strategies adopted by firms, in light of inconsistent findings from existing research (Athuahene-Gima, 2005; Christensen & Bower, 1996). In line with recent meta-analytical work (Grinstein, 2008), our findings suggest that customer and competition orientation are positively related to both exploratory and exploitative innovation. However, they do not provide support for the assertions of Christensen & Bower (1996), who argue that customer orientation is likely to have stronger effects on exploitative innovation and competitor orientation on exploratory innovation.

Second, by examining whether family ownership moderates the relationship between the two dimensions of market orientation and both exploratory and exploitative innovation, our study reveals differences between family and non-family firms in terms of the relative importance of customer and competitor orientation for exploratory innovation which involves the development of new services and markets. Our most striking finding is that family firms which are customer focused are more likely to undertake exploratory innovation than non-family firms. This suggests a greater proclivity of family firms to undertake more speculative, and potentially more ground breaking innovation, when relationships with customers (as measured by customer orientation) are strong. In other words, where family businesses have close ties with customers, they appear to see the strength and durability of these ties as an incentive to undertake more ambitious types of innovation. The security of close partnership with customers, in other words, enables investment in radical innovations that can transform these relationships in positive ways of mutual benefit. The implication of this is clear:

pursuing close partnerships with customers is a viable and valuable strategy for most family firms, especially when seeking to conduct more exploratory innovation. These findings highlight the importance of understanding how differences between family and non-family firms in terms of their resource endowments influence firm strategy in line with prior work (Habbershon & Williams, 1999). More specifically, our findings are supportive of prior literature which finds that family-firms are better at developing strong collaborative relationships with their key customers characterized by high levels of trust and reciprocity than non-family firms (Dyer, 2006; Habbershon & Williams, 1999; Lyman, 1991). These provide family managers with tacit knowledge of how to work best with their key customers in developing new products and services, and increase the willingness of customers to forward advice and suggestions in the innovation process.

In addition, our findings reveal that non-family firms are better at leveraging competitor orientation to support both exploratory and exploitative innovation. This may result from the fact that non-family firms typically have a more diverse management team, which is not subject to family norms and values, and benefits from the market knowledge of 'professional' non family managers. This will lead non-family firms to be more focused on external market conditions, and better able to understand and use competitor information when conducting innovation. Our findings are supportive of recent work which suggests that family firms are less likely to utilize the market knowledge of non-family members when making strategic decisions and take more time to react to competitor information (Short et al., 2009; Zahra et al., 2008).

On a more practical note, our results suggest that firms should seek to develop a strong market orientation in order to support the development of innovation strategies. More specifically, our research suggests that firms looking to develop both exploratory and exploitative innovation should both focus on building a strong customer orientation as well as

a strong competitor orientation. This may be done by introducing mechanisms that allow customers to provide feedback on existing products and services, and through investment in market research respectively. Indeed our findings show that firms who engage in exploratory innovation are also more likely to engage in exploitative innovation, suggesting the two forms of innovation are not mutually exclusive but may co-evolve.

In addition, our findings suggest that the extent to which firms should seek to develop a strong competitor orientation versus a strong customer orientation when looking to develop exploratory innovation depend on whether the firm is a family-owned firm or not. Our results suggest that it is more worthwhile for family-owned firms to focus on developing a strong customer orientation than emphasise competing against other firms. In other words building and maintaining ties with key customers generates positive results for innovation through allowing the family firm to develop radically new services. In contrast, managers in non-family firms will find it more effective to direct their attention towards the development of a strong competitor orientation.

Limitations and suggestions for future work

As with all research this study has a number of limitations. The first arises from its reliance on a cross sectional design. This means we do not have conclusive proof of causality between the variables in the study. In order to address this in future researchers may collect data on market orientation and innovation variables at different points in time. Second, as firms in the present study came from the service sector the generalizability of our findings to other sectors of the economy need to be determined. Future research may investigate whether the impact of customer and competitor orientation on exploitation and exploration are similar in manufacturing firms. Finally, although in the present study we took steps to control for

common method bias, future research might collect data on the main variables in our study from multiple respondents in each firm. This should provide for more robust findings.

Conclusion

This study extends the literature on service innovation by examining the relative importance of customer and competitor orientation to exploitative and exploratory innovation. In addition, by establishing that customer orientation is more important to exploratory innovation in family firms, and competitor orientation in non-family firms, it highlights the need to consider ownership factors in determining the innovation strategies adopted by firms. It is hoped this study serves as a first step to further examination the importance of market orientation to different measures of service innovation, and how ownership characteristics influence the dynamic process by which innovation strategies are undertaken.

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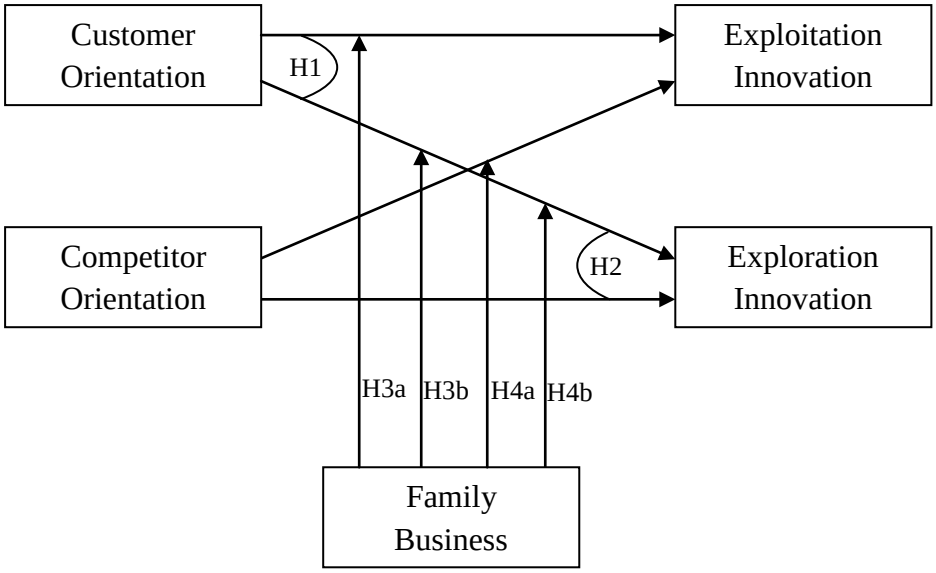


Figure 1 Research model

Table 1 Industry sectors Based on ANZSIC

Divisions	N	%
Financial and Insurance Services	47	21
Wholesale and Retail Trade	19	8
Construction	13	6
Accommodation, and Food Services	12	5
Information Media and Telecommunications	50	22
Professional, Scientific, and Technical Services	27	12
Public Administration and Safety	7	3
Education and Training	13	6
Healthcare and Social Assistance	19	8
Transport, Postal, and Warehousing	5	2
Electricity, Gas, Water, and Waste Services	4	2
Arts and Recreation Services	8	4
Other Services	4	2
Total	228	100

Table 2 Firm size

Organizational size	**N**	**%**
Less than 5	14	6
5 to 19	50	22
20 to 49	52	23
50 to 99	30	13
100 to 249	34	15
250 – 499	16	7
500 or more	29	13
Missing value	3	1
Total	**228**	**100**

Table 3 Firm age

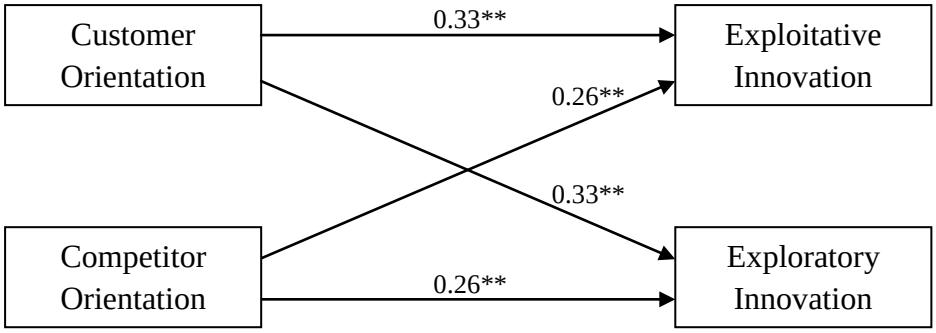
Firm age	**N**	**%**
less than 10 years	29	13
10-19 years	62	27
20-29 years	40	18
30-39 years	30	13
40-49 years	16	7
50-74 years	26	11
75 years or more	23	10
Missing value	3	1
Total	**228**	**100**

Table 4 Scale validity and reliability

Scales	Items	Factor loading	Cronbach's alpha
Uncertainty	Environmental changes in our local market are intense	0.60	0.81
	Our clients regularly ask for new products and services	0.63	
	In our local market, changes are taking place continuously	0.82	
	In a year, our market has changed significantly	0.71	
	In our market, the volumes of products and services to be delivered change fast and often	0.76	
Hostility	Competition in our local market is intense	0.89	0.86
	Our organizational unit has relatively strong competitors	0.81	
	Competition in our local market is extremely high	0.94	
	Price competition is a hallmark of our local market	0.59	
Customer Orientation	We closely monitor and assess our level of commitment in serving customers' needs	0.77	0.85
	Business strategies are driven by the goal of increasing customer value	0.79	
	Our competitive advantage is based on understanding customers' needs	0.66	
	Our business objectives are driven by customer satisfaction	0.71	
	We frequently measure customer satisfaction	0.68	
	We pay close attention to after-sales service	0.62	
Competitor Orientation	In our organization, our salespeople share information about competitor information	0.58	0.80
	We respond rapidly to competitive actions	0.80	
	Top management regularly discuss competitors' strength and weaknesses	0.76	
	Customers are targeted when we have an opportunity for competitive advantage	0.67	
Exploitative innovation	We frequently refine the provision of existing services	0.53	0.90
	We regularly implement small adaptations to existing services	0.88	
	We introduce the improved version of our existing services in our local market	0.86	
	We improve our provision's efficiency of services	0.87	
	We increase economies of scales in existing markets	0.77	
	Our company expands services for existing clients	0.59	
Exploratory innovation	Our company accepts demands that go beyond existing services	0.84	0.88
	We invent new services	0.91	
	We experiment with new services in our local market	0.84	
	We commercialize services that are completely new to our company	0.84	
	We frequently utilize new opportunities in new markets	0.57	
	Our company regularly uses new distribution channels	0.59	
Chi-square = 719.32	df = 419	RMSEA = 0.05	NFI = 0.92	NNFI =0.96	CFI = 0.96	SRMR = 0.05	

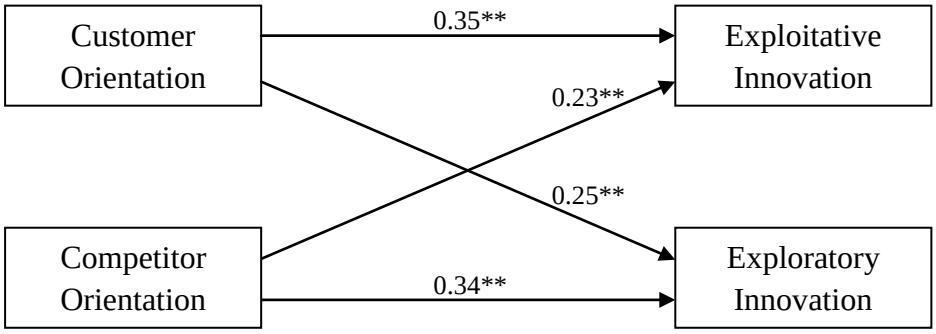
Table 5 Bivariate correlations

	Mean	S.D.	1	2	3	4	5	6	7	8
1. Firm size	3.82	1.80	1							
2. Firm age	3.50	1.91	.27**	1						
3. Family business	0.28	0.45	-.11	.00	1					
4. Uncertainty	4.79	1.14	.09	.01	.04	1				
5. Hostility	5.37	1.22	.07	.12	.06	.26**	1			
6. Customer Orientation	5.29	0.98	.01	-.09	-.01	.13*	-.04	1		
7. Competitor Orientation	4.91	1.13	.10	-.14*	.01	.19**	.02	.43**	1	
8. Exploitative Innovation	4.78	1.24	.08	-.12	.02	.26**	-.05	.53**	.49**	1
9. Exploratory Innovation	5.33	0.93	-.05	-.09	.03	.38**	-.12	.39**	.45**	.59**



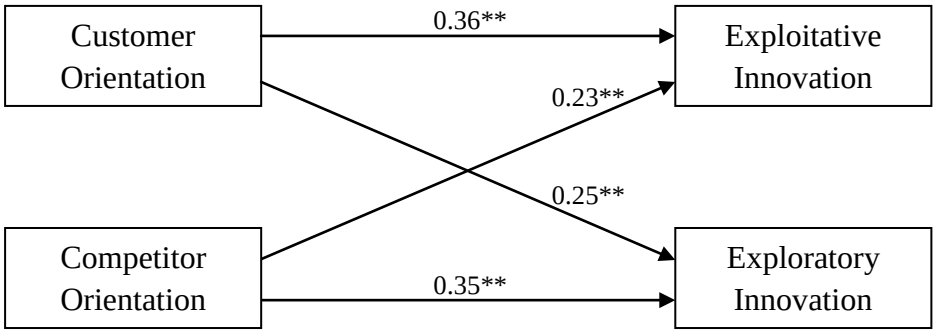
Chi-square = 3.84 df = 2 RMSEA = 0.06

Figure 2 Multi-group path analysis with constrained paths



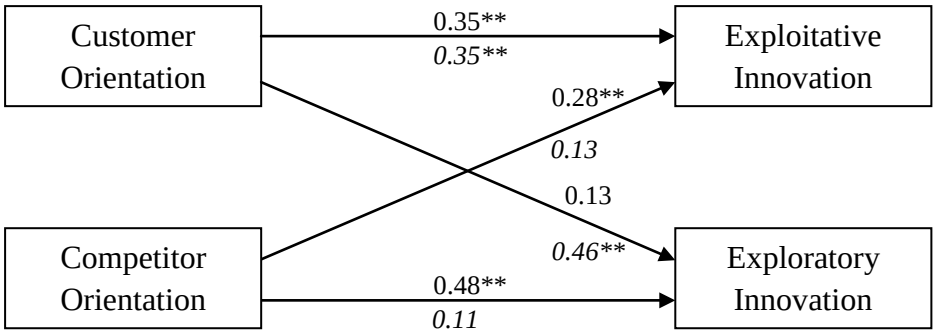
Chi-square = 0.00 df = 0 RMSEA = 0.00

Figure 3 Multi-group path analysis with unconstrained paths



Chi-square = 9.95 df = 4 RMSEA = 0.12

Figure 4 Multi-group path analysis with constrained paths



(paths for family business are on italics)

Chi-square = 0.00 df = 1 RMSEA = 0.00

Figure 5 Multi-group path analysis with unconstrained paths